

What is claimed is:

1. A fluid sensor comprising:

a concentrator;

a separator connected to the concentrator;

a phased heater array having a first plurality of heating elements situated in the concentrator and a second plurality of heating elements situated in the separator; and

a ratio control mechanism for changing the ratio of the first plurality of heating elements relative to the second plurality of heating elements.

2. The sensor of claim 1, further comprising:

a first detector connected to the separator; and

a micro discharge mechanism proximate to the first detector.

3. The sensor of claim 2, further comprising a second detector connected to the concentrator.

4. The sensor of claim 3, further comprising a flow sensor connected to the concentrator and the separator.

5. The sensor of claim 4, further comprising a processor connected to the detectors, concentrator, flow sensor, separator and micro discharge mechanism.
6. The sensor of claim 5, wherein the processor comprises switches and control logic.
7. The sensor of claim 6, wherein the switches and control logic are situated on a first board.
8. The sensor of claim 7, wherein the concentrator, separator and phased heater array are situated on a second board.
9. The sensor of claim 8, wherein the first board and second board are connected to each other.
10. The sensor of claim 9, wherein the first board and the second board are connected via solder bumps and/or wire-bonds.
11. A fluid sensor comprising:
 - a phased heater structure; and

at least one discharge device proximate to the phased heater structure.

12. The sensor of claim 11, further comprising a processor connected to the phased heater structure.

13. The sensor of claim 12, wherein:

the phased heater structure comprises a concentrator and a separator;

the concentrator has a first plurality of heaters of the phased heater structure;

the separator has a second plurality of heaters of the phased heater structure; and

a ratio of the first plurality of heaters relative to the second plurality of heaters may be varied.

14. The sensor of claim 13, wherein the concentrator may be a pre-concentrator.

15. The sensor of claim 12, further comprising switches and logic components connected to the phased heater structure.

16. The sensor of claim 15, wherein:

the phased heater structure is situated on a first chip;

the switches and logic components are situated on a second chip; and

the first and second chips are connected to each other.

17. The sensor of claim 16, wherein the first and second chips are connected via wire-bonds.

18. The sensor of claim 16, wherein the first and second chips are connected via solder-bumps.

19. A fluid sensor comprising:

a phased heater structure proximate on a first chip;

a plurality of switches and/or logic components on a second chip; and

the first chip and second chip are connected.

20. The sensor of claim 19, wherein the first and second chips are connected via solder-bumps.

21. The sensor of claim 19, wherein the first and second chips are connected via wire-bonds.

22. A fluid sensor comprising:

a concentrator having a first plurality of heater elements;

a separator having a second plurality of heater elements; and

a controller connected to the concentrator and separator; and

wherein a ratio of the first and second pluralities of heater elements may be changed via the controller.

23. The sensor of claim 22, wherein the concentrator may be a pre-concentrator.

24. The sensor of claim 23, further comprising at least one discharge device proximate to the separator and connected to the controller.

25. The sensor of claim 23, wherein:

the concentrator and separator are on a first chip;
and

the controller is on a second chip connected to the first chip.

26. The sensor of claim 25, wherein the first and second chips are connected via wire-bonds.

27. The sensor of claim 25, wherein the first and second chips are connected via solder-bumps.

28. The sensor of claim 24, further comprising at least one thermal-conductivity detector connected to the controller.

29. The sensor of claim 28, further comprising at least one flow sensor connected to the controller.

30. The sensor of claim 24, wherein the heater elements apply heat in a sequential phased manner to the concentrator.

31. A fluid sensor comprising:
 means for concentrating a fluid with heating elements
 in a phased manner;
 means for separating components of the fluid with
 heating elements; and

means for applying at least one discharge on the
fluid.

32. The fluid sensor of claim 31, further comprising means for selecting a number of heating elements for the means for concentrating.

33. The fluid sensor of claim 31, further comprising a means for selecting a number of heating elements for the means for separating.

34. The fluid sensor of claim 31, wherein said means for applying at least one discharge on the fluid is for identifying a possible component of the fluid.

35. A method for sensing a fluid comprising:
concentrating a fluid with heating elements in a
phased manner;
separating components of the fluid with heating
elements;
applying at least one discharge to the fluid; and
detecting the at least one discharge applied to the
fluid.

36. The method of claim 35, further comprising selecting a number of heating elements for concentrating the fluid.
37. The method of claim 36, further comprising selecting a number of heating elements for separating the fluid.
38. The method of claim 35, wherein detecting the at least one discharge applied to the fluid may provide identification of at least one component of the fluid.
39. The method of claim 36, further comprising changing the number of heating elements for concentrating the fluid.
40. The method of claim 38, further comprising determining a conductivity of the fluid.
41. The method of claim 37, wherein the heating elements are arranged in a pattern of concentrating and separating elements having coatings of various adsorber materials.
42. The method of claim 41, wherein the various adsorber materials contribute to separating various sets of gases from the fluid.